UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,046	09/20/2003	Sunil K. Nagarajrao	SJO920030012US1	6579

44190   7590   09/29/2009
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ART UNIT	PAPER NUMBER
2453	

MAIL DATE	DELIVERY MODE
09/29/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 June 2009*.
2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-5,17 and 21-31* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1,3-5,17,21-24 and 27-30* is/are rejected.
7)☒ Claim(s) *25,26 and 31* is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
        1.☐ Certified copies of the priority documents have been received.
        2.☐ Certified copies of the priority documents have been received in Application No. _____.
        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to an Amendment filed 6/3/09. Claims 1,3-5,17,21-31 are

currently pending. Any rejection not set forth below has been overcome by the current Amendment.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1,3-5,17,21-24,27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Matheny et al. (US 2002/0161883), herein referred to as Matheny, and further in view of Goringe et al.

(US 2003/0046427), herein referred to as Goringe.

As per claim 1, Matheny discloses a network management system for discovering information

about a network, as claimed, comprising:

a plurality of nodes (see Fig. 1 [110], *showing a plurality of network devices (i.e. nodes)*);

plural discovery agents on said nodes adapted to discover information concerning said network

(see paragraph 8, *describing a number of discovery agents to perform a coordinated network discovery*

for network [100]);

each of said discovery agents having an associated discovery capability computed prior to

discovery (see paragraph 17, *describing how the agents have capabilities such as attributes of the*

agents, calls that the agents supports that are defined in a capability matrix, and different discovery

agents may perform discovery operations using different techniques, and may collect different types of

data (see paragraph 11));

each of said discovery agents having an associated discovery assignment (see paragraph 19,

describing how a discovery operation is initiated by a network manager wherein the request may include

requested data types and designate an address range or subnets for discovery and the discovery request

may be compared to the available capabilities defined by the capability matrix for the agent); and

collectively, said agent discovery assignments being a subset of said agent discovery capabilities

(see paragraph 19, *since the request includes an assignment that is compared to the available*

capabilities, it is implied that the assignment may not use the entire capability of the agent, for example

the assignment may be to discover a certain range of addresses that is a subset of the range of

addresses that the agent is capable of discovering);

said agent discovery capabilities being overlapping due to some of said agents being capable of

discovering the same information from the same network device (see paragraph 19, *describing how more*

than one agent can be capable of performing the requested discovery request).

Although the system disclosed by Matheny shows substantial features of the claimed invention

(discussed above), it fails to disclose said discovery assignments being non-overlapping, such that no

network device is discovered more than once by different discovery agents seeking the same information,

one or more agents are not permitted to perform full discovery of information due to one or more other

discovery agents being assigned to discover the same information and no duplicate discovery information

is generated.

Nonetheless, these features are well known in the art and would have been an obvious

modification of the system disclosed by Matheny, as evidenced by Goringe.

In an analogous art, Goringe discloses a system for discovering a topology of a distributed

processing network that includes a first topology discovery agent configured to contact a first set of

routers and a second topology discovery agent configured to contact a second set of routers (see

Abstract). Goringe further discloses discovery assignments being non-overlapping, such that no network

device is discovered more than once by different discovery agents seeking the same information, one or

more agents are not permitted to perform full discovery of information due to one or more other discovery

agents being assigned to discover the same information and no duplicate discovery information is

generated (see paragraph 43, *describing how the system maintains a number of listings (outstanding,*

finished, etc) to avoid duplication of computational effort during topology discovery (i.e. implying seeking

the same information if the goal is to not have duplication of computational effort) so that interfaces that

have been contacted do not need to be contacted again implying one or more agents not permitted to

perform full discovery of information because they limit their full discovery to avoid duplication and non-

overlapping discovery assignments so that no network device is discovered more than once by different

agents and no duplicate discovery information is generated).

Given the teaching of Goringe, a person having ordinary skill in the art would have readily

recognized the desirability and advantages of modifying Matheny by employing non-overlapping

discovery assignments, such as disclosed by Goringe, in order to avoid duplication of computational

effort.

As per claim 3, Matheny further discloses that the agent discovery assignments are based on

said discovery capabilities of different discovery agents and a determination of which discovery agents

having overlapping discovery capabilities are most fit to receive said agent discovery assignments (see

paragraph 19, where the agents are picked based on the capabilities according to a matrix, i.e. the most

fit agents are picked to receive the discovery assignments).

As per claim 4, Matheny further discloses that the agent discovery assignments reflect one or

more data collection service registrations in which a network manager in said system registers with said

plurality discovery agents, to receive specified discovery information agents cost to obtain network

information, load balancing among said plural discovery agents, and assignment churn (see paragraph

17, *describing registration operation for registering agents for data collection*).

As per claim 5, Matheny further discloses that agent discovery assignments comprise one or both

of inband and outband discovery assignments (see paragraph 11).

As per claim 17, Matheny-Goringe disclose a network discovery agent for use in a data storage

network, as claimed, comprising:

a processing node (see Matheny paragraph 8);

discovery capability logic determining and providing agent discovery capability information to a

requestor, said agent discovery capability information being a subset of all discovery information

obtainable by said agent (see Matheny paragraph 19, *describing a requestor (i.e. network manager)*

requesting a discovery request and checking the capability of agents that can satisfy the desired discovery request); and

discovery query logic implementing discovery queries based on agent discovery assignment information determined from said capability information (see Matheny paragraph 19, *where the discovery queries are performed based on the agents that were qualified to perform the discovery*); and

said agent discovery capability overlapping the discovery capability of one or more other network discovery agents due to some of said agents being capable of discovering the same information from the same network device, and said discovery queries utilizing discovery assignments computed prior to discovery (see Matheny paragraphs 11, 17, and 19) that are non-overlapping relative to said other discovery agents, such that no network device is discovered more than once by different discovery agents seeking the same information said discovery agent performs discovery of some information that said other discovery agents are not permitted to obtain and no duplicate discovery information is generated (see Goringe paragraph 43, *showing how duplication of computational effort is avoided implying seeking the same information but only having certain agents cover a certain area to avoid duplication and some agents are not permitted to obtain certain information that is already obtained to avoid duplication*).

As per claim 21, Matheny further discloses that the agent discovery assignments for one or more of said discovery agents are a subset of said discovery capabilities of said one or more discovery agents (see paragraph 19, *since the request includes an assignment that is compared to the available capabilities, it is implied that the assignment may not use the entire capability of the agent, for example the assignment may be to discover a certain range of addresses that is a subset of the range of addresses that the agent is capable of discovering*).

As per claim 22, Matheny-Goringe fails to particularly disclose that one or more of said discovery agents are capable of discovering said information from said network device but are given no discovery assignment at all. However, In re Karlson renders the claim obvious by eliminating elements and its function. At the time of the invention, one or ordinary skill in the art would have found it obvious to give some agents no discovery assignment at all even though they are capable of discovering information

because another agent could have potentially covered the same area and since Goringe is concerned with avoiding duplication, one of the agents could be given no assignment at all to avoid duplication with another agent that is given the same assignment.

As per claim 23, Matheny further discloses that the agent discovery assignments are based on said discovery capabilities being processed by a network manager and each discovery agent's discovery assignment being stored at said discovery agent for subsequent reference (see paragraph 19 and 20).

As per claim 24, Matheny further discloses that the agent discovery assignments are based on an input listing of said discovery agents, the network devices they are capable of discovering and a cost to discover each network device, and an output listing of said discovery agents and the network devices and discovery agents are assigned to discover (see paragraphs 17,19-21).

As per claim 27, Matheny further discloses that he discovery agents are configured to conduct agent capability queries in response to capability polls requested by a network manager (see paragraph 19).

As per claim 28, Matheny further discloses that the agent capability queries seek a minimal subset of information required to effect calculation of said agent discovery assignments (see paragraph 19).

As per claim 29, Matheny further discloses that each of the discovery agents is configured to implement a full discovery query that returns a complete information hierarchy identifying all levels of discoverable entities in a path from said agent to all network endpoints reachable by that agent, and to further implement said agent capability query that gathers a subset of said complete information hierarchy for use in computing said agent assignments (see paragraph 19).

As per claim 30, Matheny further discloses that the agents are configured to conduct said agent capability queries based on said capability polls being issued in response to one or more of a network event being detected an agent's discovery capabilities having changed and an agent being added, removed or modified (see paragraph 17).

Allowable Subject Matter

3.   Claims 25-26,31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

4.   Applicant's arguments filed December 11, 2008 have been fully considered but they are not persuasive.

A)   Applicant contends that Goringe teaches that the two discovery agents have non-overlapping discovery capabilities because they seek different types of information.

In considering A), the Examiner concedes. However, the Goringe reference was used to teach that the discovery <u>assignments</u> are non-overlapping, which is different that having non-overlapping capabilities. Matheny was used to teach that the routers had <u>capabilities</u> being overlapping. In this case, Goringe was used to teach that it would be obvious to assign those agents different discovery <u>assignments</u> in order to avoid duplicate discovery.

B)   Applicant contends that Matheny does not teach that the discovery agents are picked based on the discovery capabilities most fit.

In considering B), the Examiner respectfully disagrees. Paragraph 19 of Matheny states that the "discovery request may be compared to the available capabilities defined by the matrix derived from the registration files in the agent directory." That is, if the capabilities do not fit within the discovery request the agent isn't used.

C)   Applicant contends that Matheny does not disclose that the agent discovery assignments reflect one or more data collection service registrations in which a network manager in said system registers with said plural discovery agents to receive specified discovery information,

agent cost to obtain network information, load balancing among said plural discovery agents and

assignment church.

In considering C), the Examiner respectfully disagrees. The discovery manager is used

by the network manager to register with the agents. Furthermore see abstract stating that new

agents are added to the system by registering an XML file with a network manager.

D)   Applicant contends that Matheny does not disclose outbound discovery assignments.

In considering D), the Examiner respectfully disagrees. The Examiner believes that

SNMP discovery is an outband discovery which teaches the claimed limitation of an outband

discovery assignment.

E)   Applicant contends that in Matheny the discovery agent registers its full capabilties in the

discovery database thus it provides information about its full capabilities not a subset and that the

range of the IP addresses is irrelevant.

In considering E), the Examiner respectfully disagrees. When a requestor needs to

search a certain address range for a network device, and the address range is a subset of the

address range that the agent is capable of traveling, it is considered a subset of capabilities. The

requestor might not need the full capability of the agent. It might need only a portion of its

capabilities, that's why matrix is consulted to determine the best suited agents to perform the

requested discovery.

F)   Applicant contends that Matheny in view of Goringe does not disclose agents that are

capable of discovering information are given no discovery assignment at all.

In considering F), the Examiner respectfully disagrees. In re Karlson renders the claim

obvious by eliminating elements and its function. At the time of the invention, one or ordinary skill

in the art would have found it obvious to give some agents no discovery assignment at all even

though they are capable of discovering information because another agent could have potentially

covered the same area and since Goringe is concerned with avoiding duplication, one of the agents could be given no assignment at all to avoid duplication with another agent that is given the same assignment.

G)   Applicant contends that Matheny does not disclose storing at the agent the discovery assignment.

In considering G), the Examiner respectfully disagrees. The agent is able to autonomously perform its discovery assignment while creating directories with the discovered nodes found during its discovery. The autonomous operation of the agent implies there is a memory that the agent uses to perform its discovery operation since it knows where to go.

H)   Applicant contends that Matheny does not disclose that assignments are based on considerations such as cost to discover each network device.

In considering H), the Examiner respectfully disagrees. The agent file has requirements that the agent has. The Examiner interprets these requirements as cost to run the agent.

I)   Applicant contends that Matheny does not teach that the discovery agents conduct agent capability queries in response to capability polls.

In considering I), the Examiner respectfully disagrees. The polling occurs when a matrix is looped through to find a discovery agent that is capable of performing the network discovery.

J)   Applicant contends that Matheny does not disclose that the agent capability queries seek a minimal subset of information required to effect calculation of said agent discovery assignments.

In considering J), the Examiner respectfully disagrees. The agents capabilities may be queried for data types and address ranges. The Examiner considers this to be a minimal subset of information to pick the agents used for the discovery assignment.

K)   Applicant contends that Matheny does not disclose that the agents implement full

discovery and further implement the agent capability query that gathers a subset of information.

In considering K), the request may include an address range that covers the entire

address range capability of the agent or may include an address range that is a subset of the

capability of the agent.

L)   Applicant contends that Matheny does not disclose capability polls being issued in

response to one or more of a network event being detected.

In considering L), the Examiner respectfully disagrees. Once new agents are registered

in the matrix, the requestor polls the newest matrix with the updated matrix.

Conclusion

5.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth

in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from

the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date

of this final action and the advisory action is not mailed until after the end of the THREE-MONTH

shortened statutory period, then the shortened statutory period will expire on the date the advisory action

is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX

MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should

be directed to PHILIP J. CHEA whose telephone number is (571)272-3951. The examiner can normally

be reached on M-F 6:30-4:00 (1st Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 571-272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Philip J Chea
Examiner
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9/23/09